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Through the President's Office

School of Tropical Medicine
of the
University of Porto Rico
under the auspices of
Columbia University

ANNOUNCEMENT

1929-1930

FOURTH SESSION



SAN JUAN, PORTO RICO

PUBLISHED BY

University of Porto Rico
AND
Columbia University



School of Tropical Medicine
of the
University of Porto Rico
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Columbia University

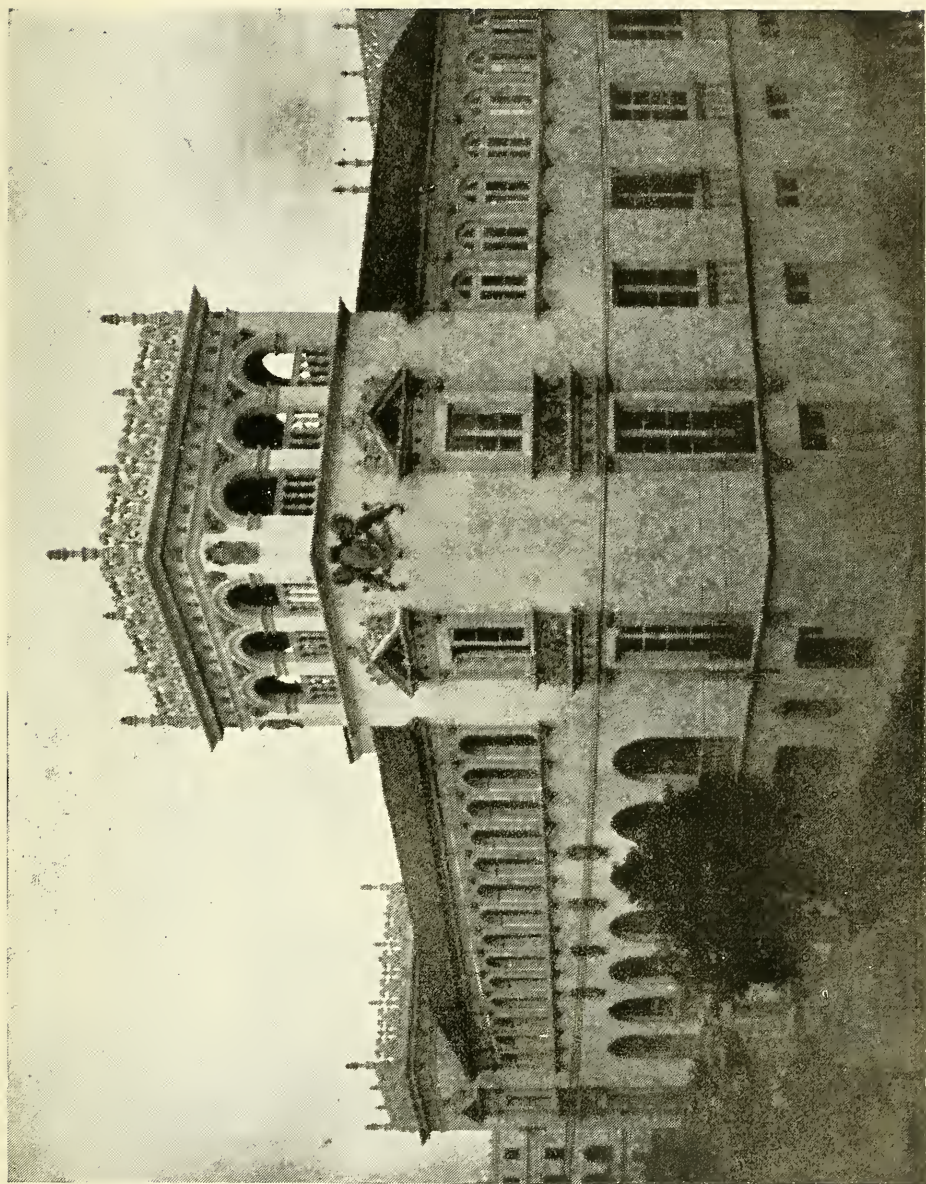


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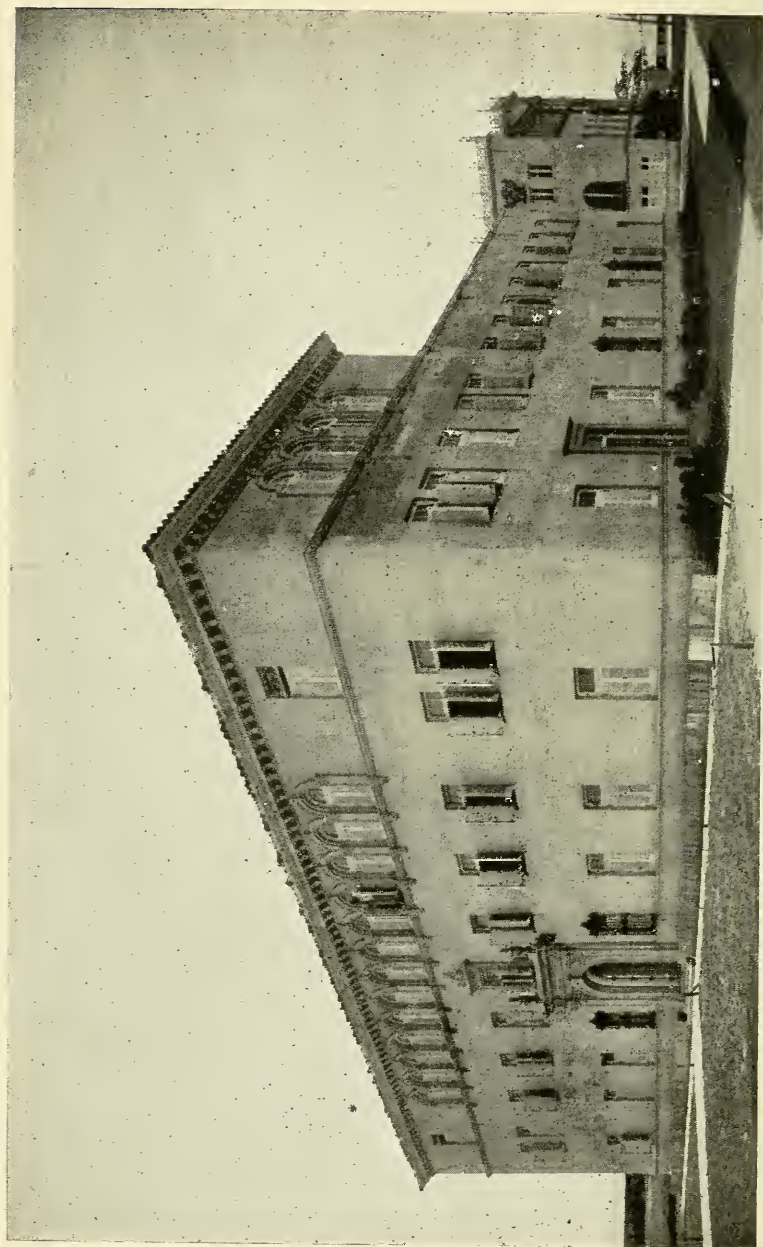
SAN JUAN, P. R.

BUREAU OF SUPPLIES, PRINTING, AND TRANSPORTATION

1929



School of Tropical Medicine—Lateral front view.



District Hospital of San Juan affiliated with the School of Tropical Medicine.

SCHOOL OF TROPICAL MEDICINE

SPECIAL BOARD OF TRUSTEES

1929-30

- ANTONIO R. BARCELÓ-----*President of the Board of Trustees of the University of Porto Rico; President of the Senate of Porto Rico.*
- RAMÓN VILÁ MAYO-----*Member of the Board of Trustees of the University of Porto Rico.*
- WILLIAM DARRACH-----*Dean of the College of Physicians and Surgeons, Columbia University.*
- EARL B. MCKINLEY-----*Director of the School of Tropical Medicine.*

SPECIAL COMMITTEE OF COLUMBIA UNIVERSITY FOR THE SCHOOL OF TROPICAL MEDICINE

- WILLIAM DARRACH-----*Dean of the College of Physicians and Surgeons.*
- J. C. EGBERT-----*Director of University Extension and Dean of the School of Business, Columbia University.*
- F. P. GAY-----*Professor of Bacteriology, College of Physicians and Surgeons.*
- JAMES W. JOBLING-----*Professor of Pathology, College of Physicians and Surgeons.*

ADMINISTRATION

- DEAN GILDO MASSÓ-----*Acting Chancellor of the University of Porto Rico.*
B. S., 1920, Ohio State; A. M., 1922, Chicago; Ph. D., Columbia, 1927.
- NICHOLAS MURRAY BUTLER-----*President of Columbia University.*
A. M. 1883, Ph. D. 1884, Columbia; LL. D. 1907, Cambridge; D. Litt. 1905, Oxford; Hon. D. 1921, Paris.
- EARL B. MCKINLEY-----*Director of the School of Tropical Medicine.*
A. B., 1916, M. D., 1922, Michigan.

FACULTY

Professors:

- BAILEY K. ASHFORD-----*Professor of Tropical Medicine and Mycology.*
M. D. 1896, D. Sc. 1911, Georgetown.
- GEORGE WILLIAM BACHMAN-----*Associate Professor of Parasitology.*
B. S. 1919, Heidelberg; M. A. 1923, Columbia; Ph. D. 1927, Chicago.
- JOSÉ S. BELAVAL-----*Clinical Professor of Tropical Medicine.*
M. D. 1904, Jefferson.

Professors—Continued.

- DONALD H. COOK-----*Associate Professor of Chemistry.*
B. S. 1917, A. M. 1922, Ph. D. 1923, Columbia.
- ANTONIO FERNÓS ISESN-----*Associate Professor of Hygiene.*
M. D. 1915, Maryland.
- WILLIAM R. GALBREATH-----*Clinical Professor of Tropical Medicine.*
A. B. 1912, Park; M. D. 1916, Nebraska.
- FRANCISCO J. HERNÁNDEZ-----*Professor of Clinical Pathology.*
M. D. 1904, Pennsylvania.
- WILLIAM A. HOFFMAN-----*Assistant Professor of Parasitology.*
B. S. 1917, Cornell; D. Sc. 1924, Johns Hopkins.
- EARL B. MCKINLEY-----*Professor of Bacteriology.*
A. B. 1916, M. D. 1922, Michigan.
- PEDRO N. ORTIZ-----*Professor of Hygiene and Communicable Diseases.*
M. D. 1919, Boston.
- MARTÍN O. DE LA ROSA-----*Assistant Professor of Communicable Diseases.*
A. B.; M. D., Seville.
- HANS SMETANA-----*Assistant Professor of Pathology.*
M. D. 1922, University of Vienna.
- RAMÓN M. SUÁREZ-----*Assistant Clinical Professor of Tropical Medicine.*
M. D. 1917, Med. Col., Va.
- JORGE DEL TORO-----*Clinical Professor of Tropical Surgery.*
M. D. 1906, Maryland.
- WILLIAM R. TORGERSON-----*Associate Professor of Tropical Medicine.*
LL. B. 1914, North Dakota; M. D. 1922, Michigan.

Instructors and Associates:

- ANTONIO ARBONA-----*Instructor in Malaria and Malaria Prevention.*
M. D. 1912, N. Y. U.
- JUAN G. BAJANDAS-----*Instructor in Rural Sanitation.*
M. D. 1904, Maryland.
- ARTURO L. CARRIÓN-----*Instructor in Bacteriology.*
M. D. 1919, Havana.
- OSCAR G. COSTA MANDRY-----*Instructor in Public Health Laboratory Methods.*
M. D. 1921, Maryland.
- JORGE V. DÁVILA-----*Instructor in Public Health Engineering.*
S. B. 1921, M. S. 1928, M. I. T.
- WALTER C. EARLE-----*Instructor in Malaria and Malaria Prevention.*
M. D. 1920, Rush (Chicago).
- EDUARDO GARRIDO MORALES-----*Instructor in Epidemiology.*
M. D. 1924, Med. Col., Va.; Dr. P. H. 1923, Johns Hopkins.
- LUIS G. HERNÁNDEZ-----*Instructor in Chemistry.*
Ph. Chem. 1914, Michigan.
- * ENRIQUE KOPPISCH-----*Instructor in Pathology.*
M. D. 1927, Jefferson.

* On leave 1929-30.

Instructors and Associates—Continued.

PABLO MORALES OTERO-----*Associate in Bacteriology.*

M. D. 1919, Maryland.

GEORGE C. PAYNE-----*Instructor in Rural Sanitation.*

M. D. 1912, Cornell; Dr. P. H. 1923, Johns Hopkins.

JUAN A. PONS-----*Instructor in Tropical Medicine.*

M. D. Jefferson, 1928.

AMÉRICO SERRA-----*Instructor in Tropical Medicine.*

M. D. 1923, Rush (Chicago).

JENARO SUÁREZ-----*Instructor in Tropical Medicine.*

M. D. 1922, Boston University.

Assistants:

LUZ MARÍA DALMAU-----*Assistant in Mycology.*

Ph. C. 1920, U. of P. R.

TRINITA RIVERA-----*Assistant in Chemistry.*

A. B. 1927, Columbia.

Visiting Professors:

COLONEL EDWARD B. VEDDER, U. S. A., P. H. B., A. M., M. D., Sc. D.

U. S. Army Medical School, Washington, D. C.

WILLIAM H. TALIAFERRO, Ph. D.

Professor of Parasitology, University of Chicago.

COLONEL CHARLES F. CRAIG, U. S. A., A. M., M. D.

Director of Laboratories, Army Medical School, Washington, D. C.

PROFESSOR HENRY C. SHERMAN, B. S., Ph. D., Sc. D.

Professor of Chemistry, Columbia University, New York.

ERNEST L. SCOTT, B. S., M. S., Ph. D.

Associate Professor of Physiology, College of Physicians and Surgeons, Columbia University.

MAURICE C. HALL, B. S., A. M., Ph. D., Sc. D., D. V. M.

Chief Zoological Division, Bureau of Animal Industry, Department of Agriculture, Washington.

Consultants:

CARLOS CHARDÓN, B. S.-----*Mycology.*

MELVILLE T. COOK, A. B., A. M., Ph. D.---*Plant Pathology.*

MANUEL DÍAZ GARCÍA, M. D.-----*Surgery.*

OLIVER L. FASSIG, Ph. D.-----*Climatology.*

WALTER A. GLINES, M. D.-----*Medicine.*

MARIO JULIÁ, M. D.-----*Neurology.*

RAFAEL LÓPEZ NUSSA, M. D.-----*Surgery.*

ANTONIO MAYORAL, M. D.-----*Radiology.*

GUSTAVO RAMÍREZ DE ARELLANO, C. E.---*Public Health Engineering.*

N. QUIÑONES JIMÉNEZ, M. D.-----*Oto-rhino-laryngology.*

Other Personnel (Office and Technical):

FÉLIX LAMELA	-----	<i>Secretary and Property Clerk.</i>
CARMELIA ORTIZ	-----	<i>Stenographer.</i>
PROVIDENCIA RODRÍGUEZ	-----	<i>Librarian.</i>
GUILLERMINA MONGE	-----	<i>Technician in Bacteriology.</i>
LUISA ROCA	-----	<i>Technician in Bacteriology.</i>
DESIDERIO CANALES	-----	<i>Technician in Pathology.</i>
ANTONIO PURAS	-----	<i>Technician in Pathology.</i>
JOSÉ OLIVER GONZÁLEZ	-----	<i>Technician in Parasitology.</i>
ADOLFO HERNÁNDEZ	-----	<i>Technician in Pathology and Mes-</i> <i>senger.</i>

SAN JUAN DISTRICT HOSPITAL OF THE DEPARTMENT OF HEALTH

AFFILIATED WITH THE SCHOOL OF TROPICAL MEDICINE

DR. PEDRO N. ORTIZ, *Commissioner of Health.*
 DR. EARL B. MCKINLEY, *Director, School of Tropical Medicine.*
 DR. JUAN A. PONS, *Resident Physician.*
 DR. DAVID E. GARCÍA, *Interne.*

VISITING PHYSICIANS

BAILEY K. ASHFORD-----*Medicine.*
 JOSÉ S. BELAVAL-----*Pediatrics and Chief of Visiting
Staff.*
 PEDRO N. ORTIZ-----*Communicable Diseases.*
 ANTONIO FERNÓS ISERN-----*Communicable Diseases of Children.*
 MARTÍN O. DE LA ROSA-----*Communicable Diseases.*
 RAMÓN M. SUÁREZ-----*Medicine.*
 JENARO SUÁREZ-----*Medicine.*
 JORGE DEL TORO-----*Surgery.*

LABORATORY STAFF

ENRIQUE KOPPISCH-----*Pathology.*
 PABLO MORALES OTERO-----*Bacteriology.*
 LUIS HERNÁNDEZ-----*Chemistry (Clinical).*

CONSULTANTS

GEORGE W. BACHMAN-----*Parasitology.*
 ARTURO L. CARRIÓN-----*Dermatology.*
 D. H. COOK-----*Chemistry.*
 JOSÉ C. FERRER-----*Urology.*
 WILLIAM R. GALBREATH-----*Tropical Medicine.*
 M. DÍAZ GARCÍA-----*Surgery.*
 WALTER A. GLINES-----*Medicine and Urology.*
 FRANCISCO J. HERNÁNDEZ-----*Clinical Pathology.*
 W. A. HOFFMAN-----*Parasitology.*
 MARIO JULIÁ-----*Neurology.*
 ANTONIO MAYORAL-----*Radiology.*
 N. QUIÑONES JIMÉNEZ-----*Oto-rhino-laryngology.*
 HANS SMETANA-----*Pathology.*
 WILLIAM R. TORGERSON-----*Tropical Surgery.*

HISTORY AND ORGANIZATION

The School of Tropical Medicine was created by Act of the Porto Rico Legislative Assembly, June 23, 1924, through a Joint Resolution which transferred to the School all the properties of the former Institute of Tropical Medicine and Hygiene. The same resolution carried a provision for the construction of an adequate building for laboratories, library and offices.

The building was completed in May 1926, at a cost, including equipment, of approximately \$130,000. Exercises celebrating the formal opening were held on September 22, 1926, and the first session began on October 1, 1926.

The School of Tropical Medicine has a Special Board of Trustees, as provided by an Act of the Legislative Assembly approved by Governor Towner July 21, 1925, consisting of five members, of whom three are chosen by the Trustees of the University of Porto Rico from its own members and two nominated by Columbia University.

A plan of cooperation between the University of Porto Rico and Columbia University for the operation of the School was worked out in conferences between representatives of the two Universities in 1925, and put in operation in 1926. According to this agreement the authority to determine the educational policy of the School and to make nominations to its faculty was delegated to Columbia University, subject to the approval of the Special Board of Trustees. In other respects the School is operated as a semi-autonomous unit of the University of Porto Rico.

FINANCES

The cost of maintenance is shared by the University of Porto Rico and Columbia University. The former allocates annually to the School \$30,500 from the University Fund, this being the amount previously directly appropriated by the Insular Government to the late Institute of Tropical Medicine and Hygiene. Columbia University has appropriated for 1929-30 the sum of \$31,100 to be expended in salaries of six Continental members of the teaching staff, including the Director, and travelling expenses of four visiting professors.

Tuition fees constitute a special fund available for equipment and technical assistance.

ADVANTAGES OF LOCATION

The primary aim of the School of Tropical Medicine is to give opportunity to study *in a tropical environment* the cause and prevention of that large ill-defined group of disorders known as tropical diseases, and at the same time to observe the influence of tropical conditions on diseases in general.

This is the first school of its kind to be established in the Americas, though the need has long been recognized and partially met through the organization of departments of tropical medicine in several of the leading medical schools of North and South America.

To the founders of the School, Porto Rico seemed to offer special advantages as the site of such an institution.

(1) Being a part of the United States, the Island has unusually close cultural and commercial relations with other parts of the country, and with Canada. The distance to New York is only thirteen hundred eighty miles and less than four days by steamer. On the other hand, ties of race and language bind Porto Rico to the peoples of Central and South America, and thus make the Island a logical meeting place for English-, Spanish- and Portuguese-speaking students and investigators.

(2) The climate, though tropical, is so tempered by the prevailing sea winds as to make it possible to pursue scientific investigations throughout the year, even in the warmer coastal zone. The high mountainous interior, quickly reached by automobile, makes an invigorating change easily obtainable at any season.

(3) Porto Rico has a strongly centralized health department, which by means of an excellent road system, comprising some sixteen hundred kilometers of pikes of asphalt and macadam, maintains a close contact with every section of the Island and its 1,500,000 people. The relations between the School of Tropical Medicine and the Insular Department of Health make possible cooperative studies that would be difficult in a less well-developed section of the tropics.

To this advantage of accessibility is added that of a thoroughly unified public-health service. In Porto Rico there are no municipal or district departments of health, this service being everywhere a function of the Insular Government.

The density of population (approximately 400 per square mile, and certain unfavorable economic factors which influence markedly living conditions of the masses, accentuate the medical problems of the Island. Even the remarkable agricultural development in recent

years has brought with it a tendency toward an increase of some of the more serious tropical diseases.

Certain tropical infections, notably malaria and uncinariasis, are very widely distributed, whereas others, such as schistosomiasis and yaws, are found only in particular localities. Beri-beri, sprue, and pellagra are present. Fungus infections of the skin are frequent. Nutritional disorders, intestinal infections, tuberculosis, and syphilis constitute serious public-health problems.

BUILDING

A three-story building, with frontage of 114 feet and depth of 60 feet, containing administrative offices, library, assembly room and laboratories, was completed in May 1926. The building is conveniently situated on the main boulevard connecting the old with the new city. It stands on one side of the small park which surrounds the new capitol, while the rear of the building overlooks the sea, less than three hundred feet away. The teaching hospital, referred to in a subsequent paragraph, gives additional space and facilities for instruction and research.

LABORATORIES

The School has well-equipped laboratories of bacteriology, chemistry, mycology, ^{Pathology} and parasitology.

Quarters for animals are provided in a one-story structure to the rear of the laboratory building.

The Plague-Prevention Laboratory of the Department of Health is available for instruction in that subject and the Insular Leper Hospital, just completed, contains laboratories for routine examinations and research. For the field work temporary laboratories are provided.

LIBRARY

The library occupies a large well-lighted room on the second floor of the School building. Over one hundred journals covering the various branches of tropical medicine and related fields are received by subscription, in addition to a number of public-health reports, society proceedings and institutional publications.

Complete sets of many of the more important journals have been obtained, and other sets are being completed as rapidly as possible.

The library contains seven hundred volumes of text books and works of reference, twelve hundred bound volumes of journals, and about ten thousand pamphlets.

CLINICAL FACILITIES

A District Hospital containing forty beds and an out-patient department has been constructed by the Government of Porto Rico on ground immediately adjoining the School of Tropical Medicine. The hospital will be operated by the Department of Health under a plan of affiliation with the School that will make it the chief teaching and research clinic of the latter. The hospital will be opened in the fall of 1929.

Clinical instruction will be given also in the following hospitals:

1. Presbyterian Hospital, 80 beds, 10 minutes distant.
2. Quarantine Hospital for Transmissible Diseases, 40 beds, 5 minutes distant from the School.
3. Leper Hospital, 50 beds, 30 minutes distant.

The San Juan Municipal Hospital, 150 beds, and the Insular Tuberculosis Sanatorium at Río Piedras, 200 beds, are also available for teaching, and two private institutions, Clínica Díaz García and "Hospital de la Sociedad Española de Auxilio Mutuo" (Spanish Hospital) have offered to cooperate in supplying clinical and pathological material. These four hospitals are ten to thirty minutes distant by automobile from the school.

The authorities of several hospitals in other towns of the Island, notably Fajardo and Ponce, have indicated a willingness to cooperate in providing cases for special study. The "Hospital del Asilo de Damas" in Ponce, the second city of Porto Rico, has the distinction of being the first institution outside San Juan to invite affiliation with the School of Tropical Medicine.

FIELD WORK

Field work may be carried on in any part of the Island at any time with the assured cooperation of the Department of Health. During the session of 1929-30 classes will spend periods of 1-2 weeks in one of the districts (30 minutes from San Juan) in which intensive campaigns against uncinariasis are being carried on, and a similar period in another district (an hour and a half from San Juan) where a demonstration of malaria-prevention measures has been in progress for some three years. In both districts the work is being carried on in cooperation with the International Health Divi-

sion of the Rockefeller Foundation, whose health officers, like those of the Department of Health, serve as instructors.

Several large sugar "centrals" which have their own hospital and clinics, have offered cooperation in carrying out field studies on infections prevalent in the sugar-cane districts.

ADMISSION REQUIREMENTS

The courses offered are planned primarily for graduates in medicine, who wish special training in tropical medicine and hygiene. The degree of Doctor of Medicine from an approved medical school, or satisfactory evidence of adequate preparation for the course which the applicant desires, will be required in each case.

Women are admitted on the same terms as men.

NUMBER OF STUDENTS LIMITED

Applicants for laboratory work will not be admitted beyond the capacity of the laboratories, several of which will accommodate not more than five workers.

The field instruction will also be given to small groups.

RESEARCH

Qualified investigators wishing either to pursue independent research or to collaborate with the local staff on problems of mutual interest, will be welcomed. Since the laboratory space is limited, arrangements should be made well in advance. Special attention will be given to workers representing teaching or research institutions. Materials needed by research workers will be supplied, as far as may be practicable, by the School.

CERTIFICATES AND CREDITS

A certified statement of the satisfactory completion of a course will be issued upon request.

Graduates in medicine may obtain a *Certificate in Tropical Medicine* by at least one year's work in residence, involving the completion of an approved course of study, representing a minimum of 30 points, ten of which must include research work in the preparation of a thesis. A special examination, in addition to the usual course examinations, will be required for the Certificate.

Credits for courses in the School will be accepted by Columbia University toward higher degrees (A. M., Ph. D.) provided the can-

didate has had at least one year's residence as a graduate student in Columbia University or (in special cases) provided the candidate presents evidence of previous training acceptable to the graduate department of Columbia University. In each case the approval of the department in which the candidate wishes to register must be obtained. Once the candidate is accepted for graduate work by Columbia University he may be assigned for work in Porto Rico. Prospective candidates for higher degrees in Columbia University, doing their work in the School of Tropical Medicine, should obtain a personal interview with the Director of the School in San Juan or with the head of the department in which he wishes to register in Columbia University, New York. A certified transcript of previous academic training must be presented in every case together with two letters of recommendation from previous instructors.

Credits will be accepted by the University of Porto Rico towards higher degrees (M. A., M. S., Ph. D.) upon the approval of the department in which the candidate is registered. Candidates for such degrees should solicit information in advance of registration since the question of credits must be taken up in each case individually.

FEES

Registration (for all students)-----	\$5. 00
Tuition per point-----	10. 00
Examination for certificate-----	10. 00
The minimum charge for tuition will be \$20, exclusive of the registration fee.	

A special fee, the amount varying with the character of work and the time, will be charged for the use of laboratories. Exception may be made in the case of institutions cooperating in researches of special interest to the School of Tropical Medicine.

A deposit for breakage, damage or loss will be required of students entrusted with expensive apparatus.

All fees are payable in advance, and no certificate of attendance will be issued until all indebtedness to the School has been liquidated.

The registration and examination fees are not subject to rebate. Upon written notice of withdrawal from the School before the completion of a course, a student may obtain a pro-rata return of the tuition fee.

MICROSCOPES

The School has a limited number of microscopes for the use of its staff and investigators together with a few old microscopes that

may be rented to students taking regular courses of the rate of five dollars per term.

Students are advised, however, to bring their own microscopes and accessory equipment such as mechanical stages, since the School can not guarantee to supply them.

LIVING EXPENSES

In the matter of living expenses San Juan is comparable to cities of the eastern part of the United States of similar size and importance.

Board and lodging in private homes or boarding houses may be had for fifteen to twenty-five dollars a week. In the best hotels the rates are proportionately higher.

Students or investigators, bringing their families will probably find it more economical, as well as more comfortable to rent a house or an apartment, if they intend to remain longer than three months. Servants, many of whom speak English, are obtainable at \$10-\$20 a month.

Students from Latin America who prefer the native Spanish cooking will naturally find a wider choice of hotels and boarding houses with the possibility of lower rates, than the continental American who, as a general rule, prefers food and quarters similar to those to which he is accustomed in the United States. But accommodations may be found to suit both the purse and taste of all who are not too exacting.

On excursions into the country arranged by the School, students will be expected to pay the pro-rata cost of transportation, food, lodging and service, and to supply themselves with any necessary camping equipment. For various reasons, including climatic conditions and the excellent road system, the cost of such trips is considerably less than in most parts of the United States.

COURSES OF STUDY

During the session of 1929-30 courses will be offered in various subjects as indicated in the outline which follows. None of the courses extend over more than one term, and in some cases the work is covered by intensive study through a shorter period. The intensive method is followed especially in the field work.

Students may either devote their entire time to one subject, occupying themselves in research in addition to the regular courses,

or they may elect a program of study including several different subjects.

Recognizing the fact that individual interests and needs vary widely, it will be the policy of the School to allow as much freedom as possible in the choice of studies. However, adequate preparation will be insisted upon in the case of each course, and a correlation of the studies undertaken will be strongly advised.

Physicians or other qualified persons wishing to devote only a part of their time to study may register for single courses.

Lectures in subjects of general interest will be open to all students as well as to the local physicians.

From time to time a series of courses planned particularly for busy physicians and health officers who can take only a few weeks from their work, will be offered. Such courses will be given as far as possible at times most convenient for those who are interested, and at a season of the year when regular term courses are not in progress. Special announcement of these courses will be issued several months in advance.

LANGUAGE

In conformity with the bilingual character of the Island, both English and Spanish are used in teaching. Prospective students who speak only the one or the other language are therefore advised to include language study in their program.

A knowledge of Spanish is of great practical value in the clinical and field work particularly.

Courses in both English and Spanish are offered in the respective departments of the University at Río Piedras, a suburb of San Juan, twenty-five minutes by omnibus from the School of Tropical Medicine.

STEAMSHIP LINES

There are two steamship lines giving a regular passenger service between New York and San Juan, the Porto Rico Line, with fast steamers leaving New York every Thursday and arriving at San Juan early the following Monday morning, and the Red "D" Line with steamers leaving New York on Wednesday, three times a month, and arriving in San Juan on the following Mondays.

The minimum price for first-class passage, one way, on the faster steamers of the Porto Rico Line is \$75, on the Red "D" Line, \$50.

Between San Juan and Santo Domingo, there is a weekly steamer by the Bull Insular Line, leaving San Juan on Mondays and Santo Domingo City on Tuesdays. First class fare one way is \$20. The fast weekly steamers of the New York and Porto Rico Line, leaving New York Thursdays, now go on to Santo Domingo City from San Juan, thus establishing additional communication between Porto Rico and Santo Domingo. The round trip to Santo Domingo may be made in three days, the voyage each way being only 15-20 hours.

A Bull Insular Line steamer leaves San Juan on Friday night for St. Thomas and St. Croix, returning Monday morning. First class fare between San Juan and St. Thomas is \$10-\$17.

There is a regular fortnightly service to Jamaica and Cuba by the Cuban Line and an irregular passenger service by freight steamers of several lines.

Between San Juan and La Guayra, Venezuela, the port of Caracas, the "Red "D" Line has three steamers a month; and the Spanish Line, one steamer a month. First class fare is \$25-\$45. The sailing time is about forty hours.

There is a monthly United States transport service between Porto Rico and Panama carrying mail and offering passenger accommodations to a limited number of government employees.

Colombia, Panama, and other countries of tropical America may be reached weekly by taking the Red "D" or the Spanish Line, to Curacao (Dutch West Indies) or La Guayra (Venezuela), where frequent steamers from Europe call en route to Panama and the West.

Haiti is reached from Porto Rico either by the all-water route, steamers calling generally at Jamaica or Santo Domingo en route, or by boat to Santo Domingo City and thence by automobile across the Dominican Republic, to Port-au-Prince, a 200-mile trip, made in one to two days.

During the winter season (January to April) some thirty tourist ships call at San Juan. It is sometimes possible to reach other West Indian and South American ports more quickly by these steamers than by the regular lines.

There are several lines of steamers (French, Dutch, Spanish and German) which connect Europe with the West Indies, Venezuela and Mexico. These steamers call at San Juan, generally on both their westward and eastward trips. The fare between European ports and Porto Rico by these lines is considerably lower than that by way of New York, the usual route taken.

AEROPLANE SERVICE

Regular aeroplane mail and passenger service has been inaugurated between San Juan, Santo Domingo, Cuba and the United States. Three planes leave San Juan each week. An additional line is contemplated that will connect Porto Rico with Trinidad and Venezuela.

GENERAL INFORMATION

The first term begins October 1, 1929, the second February 1, 1930. The session ends May 31, 1930. Each term is approximately sixteen weeks.

Registration for scheduled courses in either term may be made up to the dates of opening, but it is advisable to make application at least a month in advance.

Application for special work in any department of the School may be made at any time.

The library, laboratories and administrative offices will be open throughout the year except possibly for a brief period in the late summer for necessary renovation.

FELLOWSHIPS

A recent gift has made possible the creation of the Bailey K. Ashford Fellowship in Tropical Medicine. A fund of \$10,000 has been given the School for this purpose, the income of which is to be used as a prize for meritorious work done in tropical medicine or to support a fellowship for special research in this field. A special committee has been appointed by the Special Board of Trustees to administer this fund.

DEPARTMENTAL STATEMENTS

The various courses which appear under the different departmental statements are planned for the graduate student having had previous satisfactory training in the biological sciences and for graduates in medicine and public health. Elementary instruction in these sciences will not be offered. Candidates presenting themselves as applicants for graduate instruction will be required to satisfy the instructor in the course or courses in which he desires to enroll that he is prepared to go on with graduate work.

Individual instruction is offered by the experimental method as well as through assigned reading, practical field work and personal contact with the instructor. In special courses the formal lecture method of instruction will be employed.

BACTERIOLOGY

Professor: EARL B. MCKINLEY.

Associate: PABLO MORALES OTERO.

Associate: MELVILLE T. COOK.

Instructor: ARTURO L. CARRIÓN.

TM—1. Tropical Bacteriology and Immunology:

Individual instruction by experimental method, assigned reading, seminars and practical work in the bacteriology of tropical diseases. Students must have had a course in general medical bacteriology.

Prof. McKinley, Dr. Morales Otero and Dr. Carrión.

First term, 6 points.

TM—2. Filterable Virus and Rickettsia Diseases:

Individual instruction by experimental method, assigned reading and seminars.

Prof. McKinley and Dr. Melville T. Cook.

Second term, 4 points.

TM—3. Research in Bacteriology and Immunology:

Prof. McKinley and staff.

First and second terms, 2 to 6 points.

The number of students for courses in bacteriology and immunology will be limited and preference will be given those students having had the best previous training for research in this field.

MYCOLOGY

Professor: BAILEY K. ASHFORD.

Assistant: MISS LUZ MARÍA DALMAU.

TM—4. Tropical Mycology:

Laboratory exercises, assigned reading and case demonstration of infection by pathogenic fungi.

Prof. Ashford and Miss Dalmau.

First term, 2 points.

TM—4a. Research in Tropical Mycology:

Prof. Ashford.

Second term, 2 to 6 points.

PATHOLOGY

Assistant Professor: HANS SMETANA.

Instructor: ENRIQUE KOPPISCH.

TM—5. Tropical Pathology:

Individual instruction through conferences, laboratory exercises and autopsies. Emphasis is placed on the commoner infections of the tropics. Courses are correlated with clinical studies. Only students with medical training are admitted.

Prof. Smetana and Dr. Koppisch.

First and second terms, 3 points per term.

TM—6. Clinico-Pathological Conferences:

Case studies with correlation of clinical and autopsy findings. Demonstration of gross and microscopic sections of autopsy and surgical specimens.

Prof. Smetana and members of the clinical staff.

First and second terms, 1 point per term.

TM—7. Research in Pathology:

Prof. Smetana.

First and second terms, 2 to 6 points.

CHEMISTRY

Associate Professor: DONALD H. COOK.

Instructor: L. G. HERNÁNDEZ.

Assistant: MISS TRINITA RIVERA.

The various courses offered in chemistry are planned for the graduate student and for graduates in medicine and public health. They presuppose a good fundamental training in organic, quantitative and biological chemistry. No student will be accepted for these courses without this basic training.

TM—8. Food and Nutrition:

Special reference is given to tropical foods. Individual instruction through conferences and laboratory exercises.

Prof. Cook and Miss Rivera.

Second term, 3 points.

TM—9. Methods of Food Investigation:

Special emphasis on biological methods for vitamins. Individual instruction through conferences, assigned reading and laboratory exercises.

Prof. Cook and Miss Rivera.

Second term, 3 points.

TM—10. Biochemical Methods:

Newer methods of analysis of the blood, urine and other body fluids.

Mr. Hernández.

First and second terms, 3 points.

TM—11. Research in Chemistry:

Students having passed satisfactorily TM-8 and TM-9 or their equivalents may be accepted for research in chemistry after conference with the instructor in charge.

Prof. Cook.

First and second terms, 2 to 6 points.

MEDICAL ZOOLOGY

Professor: WILLIAM H. TALIAFERRO (Visiting professor).

Associate Professor: GEORGE W. BACHMAN.

Assistant Professor: WILLIAM H. HOFFMAN.

TM—12. Helminthology:

Conferences and practical exercises in laboratory and field covering the parasitic worms of man, commonly found in the tropics.

Prof. Hoffman.

First term, 2 points.

TM—13. Immunology of Parasites:

Conferences and practical exercises in the laboratory.

Prof. Taliaferro.

Second term, 2 points.

TM—14. Medical Entomology:

Conferences and demonstrations covering the important vectors concerned in the transmission of human diseases.

Prof. Hoffman.

Second term, 2 points.

TM—15. Field Studies in Entomology:

A practical course aimed at teaching methods of study and to familiarize the student with the commoner disease-carrying insects in Porto Rico.

Prof. Hoffman.

Second term, 2 points.

TM—16. Protozoology:

Conferences and laboratory exercises. Emphasis on the human pathogenic protozoa. Course correlated with entomology.

Prof. Bachman.

Second term, 2 points. (May not be offered in 1930).

TM—17. Research in Protozoology, Helminthology and Entomology:

With opportunity for field investigations.

Professors Bachman and Hoffman.

TROPICAL MEDICINE AND SURGERY

Professors: JOSÉ S. BELAVAL, JORGE DEL TORO, WILLIAM R. GALBREATH,
BAILEY K. ASHFORD.

Associate Professor: WILLIAM R. TORGERSOHN.

Assistant Professor: RAMÓN M. SUÁREZ.

Instructors: AMÉRICO SERRA and JENARO SUÁREZ.

TM—18. Clinics in Tropical Medicine:

Clinical conferences and demonstrations covering the commoner diseases of the tropics.

By department staff.

First and second terms, 1 point per term.

TM—19. Bedside Instruction in Tropical Diseases:

Wards of the District Hospital, San Juan.

Professors Belaval, Ashford, Toro, Suárez and others.

Wards of the Presbyterian Hospital, Santurce.

Professors Galbreath and Torgerson.

First and second terms, 2 to 4 points.

TM—20. Dispensary Service and Out-patient Clinics:

District Hospital, San Juan, Presbyterian Hospital, Santurce and Department of Health.

By department staff.

First and second terms, 2 to 4 points.

TM—21. Research in Tropical Medicine and Surgery:

Clinical and laboratory facilities are offered in the District Hospital, Presbyterian Hospital and other cooperating hospitals under the direction of the staffs of the respective institutions.

First and second terms, 2 to 6 points.

TM—22. Seminars and Clinics:

Weekly evening meetings for progress reports by staff and students, reviews of current literature and presentation of clinics.

Professors McKinley, Belaval and staff.

First and second terms, 1 point per term.

PUBLIC HEALTH AND COMMUNICABLE DISEASES

Professor: PEDRO N. ORTIZ.

Associate Professor: ANTONIO FERNÓS ISERN.

Assistant Professor: MARTÍN O. DE LA ROSA.

Instructors: ANTONIO ARBONA, JUAN G. BAJANDAS, OSCAR G. COSTA
MANDRY, JORGE V. DÁVILA, WALTER C. EARLE, EDUARDO
GARRIDO MORALES, and GEORGE C. PAYNE.

TM—23. Public-Health Administration:

Course includes lectures, conferences and tours of inspection. Emphasis placed on problems associated with tropical living conditions.

Prof. Ortiz, Prof. Fernós and staff.

First term, 2 points.

TM—24. Public-Health Engineering:

Lectures, demonstrations, tours of inspection, with special reference to problems of water supply, and purification, sewage and garbage disposal, milk supply, etc.

Mr. Dávila.

Second term, 2 points.

TM—25. Public-Health Laboratory Methods:

Systematic instruction and practical training in the commoner tests used in the tropics.

Dr. Costa Mandry.

Second term, 2 points.

TM—26. Communicable Diseases:

Lectures and field demonstrations upon the commoner communicable diseases of the tropics, including malaria, leprosy, plague, yaws, and tuberculosis, with emphasis upon preventive measures.

Prof. Ortiz, Prof. de la Rosa and staff.

Second term, 2 points.

TM—27. Rural Sanitation with Reference to Uncinariasis:

Practical work in field and laboratory with opportunity to follow methods and results of intensive campaign against uncinariasis.

Dr. Payne and Dr. Bajandas.

First and second terms, 1 to 2 points per term.

TM—28. Malaria and Malaria Prevention:

Surveys, field demonstrations of preventive measures, and laboratory exercises including study of mosquitoes.

Dr. Earle and Dr. Arbona.

First and second terms, 1 to 2 points per term.

TM—29. Tropical Epidemiology:

Lectures with demonstrations in Health Units, and in the field.

Dr. E. Garrido Morales.

First term, 2 points.

TM—30. Research in Public Health and Communicable Diseases:

Special opportunities for field studies.

Prof. Ortiz and staff.

Two to six points per term.

For further information apply to

**DIRECTOR,
SCHOOL OF TROPICAL MEDICINE,
San Juan, Porto Rico.**

STUDENTS OF THE SCHOOL OF TROPICAL MEDICINE

Session 1926-27

Félix Alfaro Díaz	San Juan, P. R.	M. D.
Manuel B. Berríos	Yabucoa, P. R.	M. D.
Ramón Berríos Berdecía	Guayama, P. R.	M. D.
Jorge Bird	Río Piedras, P. R.	M. D.
Alice M. B. Burke	San Juan, P. R.	M. D.
Arturo L. Carrión	San Juan, P. R.	M. D.
O. Costa Mandry	San Juan, P. R.	M. D.
Jorge V. Dávila	San Juan, P. R.	C. E.
César Domínguez	Humacao, P. R.	M. D.
Frances B. Floore	Río Piedras, P. R.	Certif.
David I. Frankel	Boston, Mass.	M. D.
Abel de Juan	San Juan, P. R.	M. D.
Francisco J. Hernández	San Juan, P. R.	M. D.
Rafael Angel Marín	San Juan, P. R.	B. S.
Ezequiel Martínez Rivera	Río Piedras, P. R.	M. D.
Antonio Mayoral	Ponce, P. R.	M. D.
Pablo Morales Otero	San Juan, P. R.	M. D.
Ramón C. Ruiz Nazario	San Juan, P. R.	M. D.
Ilia María Ortiz	Río Piedras, P. R.	Ph. C.
Gonzalo Palacios de Borao	Valencia, Spain	S. J.
Rafael Pérez Porrata	San Juan, P. R.	B. S.
Manuel Pujadas Díaz	San Juan, P. R.	M. D.
José Rodríguez Pastor	San Juan, P. R.	M. D.
Fructuoso Sánchez	Carolina, P. R.	M. D.
Gurbax Singh Sant	Amritsar, Punj., Ind.	M. D.
Américo Serra	San Juan, P. R.	M. D.
Eurípides Silva	San Juan, P. R.	M. D.
Jenaro Suárez	San Juan, P. R.	M. D.
Luis García de Quevedo	San Juan, P. R.	M. D.

Session 1927-28

Angeles Apellániz	San Juan, P. R., Candidate of B. S., U. of P. R.
Manuel B. Berríos	Yabucoa, P. R. M. D.
L. M. Boyers	Berkeley, California M. D.
Alice M. B. Burke	San Juan, P. R. M. D.
Arturo L. Carrión	San Juan, P. R. M. D.
Oscar G. Costa Mandry	San Juan, P. R. M. D.
César Domínguez	Humacao, P. R. M. D.
Fernando Figueredo	San Juan, P. R. M. D.
Francisco Landrón	San Juan, P. R. B. S.
Rita R. Lang	Río Piedras, P. R. B. S.
Rafael Angel Marín	San Juan, P. R. B. S.

Antonio Martínez Alvarez	San Juan, P. R.	M. D.
Ezequiel Martínez Rivera	Río Piedras, P. R.	M. D.
Antonio Mayoral	Ponce, P. R.	M. D.
Pablo Morales Otero	San Juan, P. R.	M. D.
Georgia O'Reilly	Río Piedras, P. R.	B. A.
Rafael Pérez Porrata	San Juan, P. R.	B. S.
Américo Pomales	San Juan, P. R.	B. S.
Grace Powers	Río Piedras, P. R.	B. A.
Manuel Pujadas Díaz	San Juan, P. R.	M. D.
Trinita Rivera	Caguas, P. R.	B. A.
Rafael Rodríguez Molina	San Juan, P. R.	M. D.
José Rodríguez Pastor	San Juan, P. R.	M. D.
Ramón C. Ruiz Nazario	San Juan, P. R.	M. D.
Elsie Van Rhyn	Río Piedras, P. R.	B. S.
Américo Serra	San Juan, P. R.	M. D.
Jacobo Simonet	Río Piedras, P. R.	M. D.
Jenaro Suárez	San Juan, P. R.	M. D.
Luis Torres Díaz	Río Piedras, P. R.	B. S.
Marcelino T. Viduya	Trujillo Alto, P. R.	M. D.

The following students in medicine were admitted for special work in the field and laboratory during the summer 1927:

Ignacio Bird	2nd year, Yale
George S. Lambert	4th year, Columbia
Juan A. Pons	4th year, Jefferson
Angel Vando	1st year, Columbia

Session 1928-29

Félix Alfaro Díaz	San Juan, P. R.	M. D.
Jenaro Barreras	Caguas, P. R.	M. D.
Alice M. B. Burke	San Juan, P. R.	M. D.
Julia Cámara	Bayamón, P. R.	B. S.
Arturo L. Carrión	San Juan, P. R.	M. D.
Jorge V. Dávila	San Juan, P. R.	B. S., M. S.
G. B. Dowling, Lieut. Comdr. U. S. N.	Washington, D. C.	M. D.
V. Hernández Usera, Lieut. U. S. N.	Washington, D. C.	M. D.
Mario Juliá	Río Piedras, P. R.	M. D.
Enrique Koppish	Aguadilla, P. R.	M. D.
José C. Landrón	San Juan, P. R.	M. D.
José Plá	Arecibo, P. R.	M. D.
Américo Pomales	San Juan, P. R.	B. S.
Juan A. Pons	San Juan, P. R.	M. D.
Manuel Pujadas Díaz	San Juan, P. R.	M. D.
Rafael Rodríguez Molina	San Juan, P. R.	M. D.
M. W. Shahane	Poona City (Bombay), India	B. S.
Jacobo Simonet	Río Piedras, P. R.	M. D.
Jenaro Suárez	San Juan, P. R.	M. D.
Luis Torres Díaz	Río Piedras, P. R.	B. S.

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